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THE CITATION CHARACTERISTICS OF THE RESEARCH LITERATURE OF POLITICAL SCIENCE BY SUBFIELD: A COMPARATIVE ANALYSIS OF CANADIAN AND U.S. ASSOCIATION JOURNALS

BY

LUISE MENDLER-JOHNSON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF LIBRARY AND INFORMATION STUDIES

FACULTY OF LIBRARY AND INFORMATION STUDIES

EDMONTON, ALBERTA

SPRING, 1990

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE CITATION CHARACTERISTICS OF THE RESEARCH LITERATURE OF POLITICAL SCIENCE BY SUBFIELD: A COMPARATIVE ANALYSIS OF CANADIAN AND U.S. ASSOCIATION JOURNALS submitted by LUISE MENDLER-JOHNSON in partial fulfillment of the requirements for the degree of MASTER OF LIBRARY AND INFORMATION STUDIES.

S. Bertram (Supervisor)

A. Schrader

G. Dacks

Date April 12, 1990

Für meine Mutter

Abstract

The present study was intended to contribute to the domain of research into the characteristics of political science literature. The focus of analysis was on the subfields of political science and involved a cross-national comparison of the Canadian Journal of Political Science (CJPS) and the American Political Science Review (APSR). The objective of the study was to investigate whether the subfields of political science show differing citation patterns from each other and from the discipline as a whole. By utilizing journals from two different countries the study intended to reveal possible differences in national characteristics of citation patterns in this discipline.

Information was gathered on the subfield and language distribution of articles in each journal and on the use of statistical methods in the articles. The method of citation analysis was applied to collect data on the publication format, subject, age, and language distribution of citations for each subfield and journal.

The results showed CJPS to be more balanced in the coverage of all subfields than APSR. Only a third of CJPS articles showed use of quantitative methods, while the vast majority of APSR articles included statistics.

Monographs were the most cited publication format in both journals across all subfields, followed by periodicals. APSR articles consistently displayed a higher periodical citation rate while CJPS authors cited a wider variety of publication formats in four of the six subfields investigated. The vast majority of citations in both journals and in all subfields were derived from disciplines within the social sciences. CJPS authors cited considerably more from disciplines related to the

humanities. None of the disciplines outside political science itself were substantially represented in all six subfields.

The age distribution of citations was similar in the two journals. With the exception of one subfield, the majority of citations was not more than 10 years old, and few were older than 25 years.

The language distribution of citations varied considerably between different subfields. French-Canadian authors cited substantially more foreign language publications than did their English-Canadian or American counterparts.

Implications of these findings for the work of information specialists were discussed.

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I. STATEMENT OF THE PROBLEM

A. General Problem Area

The nature of scientific communication in academic disciplines has become an area of great interest to librarians and information specialists who are eager to gain a better understanding of the use of scientific information in order to improve services to researchers.

One quantitative approach to measuring and understanding the use of research literature unobtrusively has been the technique of citation analysis - "a method often used in the physical sciences, but applied less frequently in the humanities and social sciences". (Broadus, 1971, 236)

The analysis of the nature of research in the physical sciences has established a profile of a high degree of knowledge cumulation, evidenced by quick obsolescence of the literature (Baum, et al., 1976), a preference for journals over monographs as a means of communicating new knowledge, a well-established system of international exchange of research information, and a low degree of subject dispersion. Good bibliographic control of the research literature and fast and comprehensive access to information are important to scientists. Information specialists have been quite successful in providing these services because of the relatively well-defined structure of the literatures of the physical sciences.

The essence of social science information use, on the other hand, has proven to be difficult to define and is in need of continued and detailed investigation. The structure of social science research literature is

characterized by great variations in citation patterns between disciplines and probably even within disciplines and their development over time. (Fitzgibbons, 1980)

Political science is one example of a complex and fragmented social science discipline. Its lack of an accepted body of theory upon which scholars may focus and build has resulted in an additive rather than a cumulative development of its research literature (Eulau in Smalley, 1980, 38). Some political scientists "long for a disciplinary consensus, for the paradigm that eliminates dissensus as it produces science" (Landau in Baum, et al., 1976, 896). Others view the plurality of research approaches and methodologies as "the essence of, rather than an obstacle to, the progress of political science" (Dryzek and Leonard, 1988, 1258).

The lack of cohesion in political science has led to the development of numerous subfields, each with its own narrowly defined core of literature, and a myriad of conflicting schools of thought. Moreover, on an international level, emphases on scope and methods in the discipline vary greatly due to the unique historical development of the field in different countries.

Studies of the literature of political science must consider all these factors and become more thorough in detail.

B. Related Literature

A number of past studies are directly relevant, either in whole or in part, to the present study (see Table 1).

The terminology in this section reflects that used by the authors of these studies and may not necessarily

correspond to the terms used in the present study (see F. Definition of Key Terms).

Martin (1952) analyzed 46 political science books of the United States Quarterly Booklist. A sample of 3,024 citations was chosen from books published in 1948 and 1949. He found that 51.3% of the references were to monographs, and 47.6% of the materials were not more than 10 years old when cited. An overwhelming number of citations were in English (89.4%); 30.9% of the references were to the special subject itself (i.e. the J class in the Library of Congress classification system), 66.2% to other social sciences, and 33.8% to other subjects.

Stewart (1970) used a textbook in the field of comparative politics published in 1963 (Comparative Politics by Harry Eckstein and David E. Apter), an American journal (American Political Science Review, 1963-66), and two British journals (Political Studies and Political Quarterly, 1958-66) to arrive at a total of 3,610 citations for analysis. The results of the study led to these main conclusions: monographs made up a "very large part of the significant literature of politics" (66%), whereas periodicals made up 23% and newspapers 3%. Three types of citations of monographic literature were identified: that derived directly from the discipline itself, that borrowed from the humanities (being relatively older), and that taken from other social sciences, particularly sociology (being of a more recent date). The periodical literature was found to be largely dominated by American sources, and references were primarily of a recent date (very few references were from the period before 1950). The proportion of foreign language material was found to be quite low for both monographs and periodicals.

Robinson (1973) undertook a longitudinal analysis (1910-1960) of change in the nature of the amount of

subject dispersion (i.e. the percentage of references cited to subjects other than political science) and the distance of subject dispersion (i.e. a weighting of the number of references cited to subjects in relatively unrelated fields). "It was hypothesized that the amount and distance of subject dispersion would vary over time because scholars' needs for information from other disciplines change with the degree of maturity of the home discipline." A 25% random sample was taken of references in 14 political science journals. Subject dispersion was measured by analyzing references using the Library of Congress classification scheme. A high proportion of non-political science citations was found (70%); however, the findings regarding the relationships between amount and distance of subject dispersion were largely inconclusive, suggesting that the causal element behind changes in subject dispersion is more complicated than was predicted.

Hajjar et al. (1975) examined six major American political science association journals (published between 1970 and mid-1975) in order to ascertain the scope and direction of the discipline. The study found that the journals showed a strong preference for articles dealing with American politics (32%) and scientific methodology (25%), while the other subfields in the discipline (international relations, comparative politics, public administration, public law, and political theory) were not as well represented. All journals were shown to be dominated by authors who were graduates of prestigious departments and a substantial proportion of the authors were affiliated with these universities at the time of publication. Hajjar et al. concluded that "the editorial practices of the journals result in an emphasis on selected fields in the profession and tend to favor certain types of authors" (381).

Baum et al. (1976) undertook a questionnaire survey of authors of multiple-author articles published in the American Political Science Review between 1960-75 in order to test the relative importance of various communication media among political scientists. The respondents indicated that they relied more heavily on books and journals than on personal communication and preprints.

In the same study, Baum et al. also undertook a citation analysis of leading journals in various disciplines. They compared the median age of citations in the different disciplines as a measure for "the degree to which a discipline may feel the need to communicate quickly about a rapidly developing field of knowledge" (904). They found that almost 70% of the literature cited in the American Political Science Review (1974) was less than ten years old; however, a "hard core" of about 10% of the literature was still alive at 30 years or older. In comparison, virtually no citations older than ten years were found in the physics and biomedicine journals investigated.

Palais (1976) examined the phenomenon of subject dispersion in political science and its implications for the design and evaluation of indexing and abstracting services. The author used Stewart's (1970) data of cited journals in rank order and measured the scattering effect after assigning subjects to each cited journal. The results (29.05% of the journals were classified in political science, 70.95% in related social sciences and outside social science) closely corroborated earlier findings by Martin (1952) and Robinson (1973).

An analysis of journal coverage by abstracting and indexing services revealed that, while coverage of the core literature was fairly good, bibliographic control of the

fringe areas was less certain (no service covered more than 69.3% of the broader range of 179 cited journals).

Hajjar et al. (1977) examined the major association journals in four nations (the United States, Canada, India, and Great Britain) published between 1970 and 1975 in regard to "the general orientation of each periodical, the extent of 'parochialism' exhibited by each nation, and the differential spread of behavioural techniques in the discipline" (327). All full-length articles were classified according to seven subfields in the discipline and information was gathered on their authors. The findings suggested a wide diversity in terms of scope and methods between the countries and implied a clear lack of cross-fertilization in international political science.

Approaching the subject of political science literature from a different conceptual basis, Smalley (1980) discussed how an outmoded system of knowledge organization may impair the satisfaction of resource and information needs of modern political scientists. The Library of Congress classification scheme reflects the state of political science in its formative decades and thus emulates the traditional approach in this discipline. The premise of an institutional, country-by-country approach to the subject matter of political science does not, however, work well with a behaviouralist orientation which has changed the discipline profoundly in this century. A broadening of the scope and methodologies in political science, as well as a reassertion of political theory have produced a "new" literature of political science that is not easily accommodated by the old classification scheme.

The bibliographic control of the "new" literature via subject heading access is plagued by a similar dilemma: Cutter's principles of "specific entry" and accessibility

for the "average user" do not suit the needs of today's specialized researchers.

> The possibilities for the evolution of new subject headings has been sharply restrained by the criterion of "namableness". Interdisciplinary, process-oriented, or generic level studies - such as those which characterize much of behavioural political science - have not, as a whole, received adequate treatment by LCSH. (41)

To illustrate this problem, a group of books from each tradition was examined to compare LC's subject analysis. In her conclusion, Smalley proposed the development of new tools which serve the particular needs of "new" political scientists as a solution to these problems.

Al-Dosary (1986) analyzed the citation patterns of political scientists in relation to variations in their research approaches. A sample of 204 political science journal articles were classified as to their analytic disposition into behavioural or traditional and as to their method of research into quantitative or non-quantitative. The citation variables examined included subject dispersion, language dispersion, the journal citation rate, and the median age of cited literature. Results showed that differences in research approaches were a significant predictor for six of the ten relationships examined. In comparing this research to previous studies, Al-Dosary found a substantially smaller subject and language dispersion of citations, a lower median age, and, except for the 'traditional' groups, a higher journal citation rate.

Table 1: Summary of related literature

Researcher	Date	Source Material	References /Citations	Dates of Data	Purposes of Study	Subject /Nationality
Martin	1952	46 books	3,000	1948, 1949	Characteristics of literature	Political topics
Stewart	1970	3 journals			Patterns of "influence"	International relations
Robinson	1970	1 textbook 1 American journal 2 British journals	1,700 895 617	1963 1963-66 1958-66	Characteristics of literature	Politics/U.S. /British
Hajjar et al.	1975	6 association journals	1,122 articles	1970-mid-1975	Scope/direction of discipline	Political science /U.S.
Baum et al.	1976	5 journals		1960-75	Communication research patterns	Political science
Palais	1976	25 journals 10 secondary services	398 articles	1968, 1970 1968-72	Subject dispersion	Political science
Hajjar et al.	1977	4 journals	669 articles	1970-75	Cross-fertilization	Political science /U.S./Canada /India/U.K.
Smalley	1980	28 books			Access to literature	Political science
Al-Dosary	1986	IPSA	sample of 204 articles	1983	Characteristics of literature-influence of research approaches and metholodolgy	Political science /international

Source: Fitzgibbons (1980, 338), adapted and expanded

C. Specific Research Problem

The present study involved the investigation of the characteristics of the research literature of political science, both as a general discipline and as a group of subfields that make up the discipline. The objective of the study was to investigate whether the subfields of political science show differing citation patterns from each other and from the discipline as a whole.

By utilizing sources from two different countries (Canada and the United States) the study also intended to reveal possible differences in national characteristics of citation patterns in this discipline. This would shed light on the question of whether citation patterns are discipline-inherent and therefore universally applicable, or whether these patterns vary from country to country. American research dominates the discipline of political science, as 95% of all its literature is produced in the United States (Kirkpatrick et al., 1982, 364). Since most bibliometric studies undertaken in this discipline have utilized American sources, a certain bias to U.S. specific findings may have resulted. From the viewpoint of Canadian librarianship, comparing citation patterns in both countries seemed useful in order to establish whether U.S. findings could be applied to Canadian settings without reservations.

The study was expected to contribute to the body of knowledge dealing with characteristics of the research literature in the discipline of political science. By refining the scope of analysis to encompass the level of subfields of a discipline, it was expected to arrive at a more detailed profile of the literature, possibly revealing distinctive citation patterns according to subfield categories in different countries.

D. Research Questions

The two major research questions investigated in this study can be expressed as follows:

1. Are there differences between the subfield citation characteristics of articles in the Canadian Journal of Political Science and those in the American Political Science Review?

2. Are there common, that is 'supranational', differences between the citation characteristics of articles from different subfields of political science in the Canadian Journal of Political Science and the American Political Science Review?

An analysis of information gathered about articles in general was intended to establish a background profile of the two journals under investigation. The basic research questions posed for this part of the study were as follows:

- Are some subfields of political science represented more often than others? If so, which subfields in which country?

- Are there differences in the use of tables and figures (indicating the use of quantitative methodologies) between the journals in general, and between subfields?

The major focus of the study was on characteristics of citations within the articles. The basic research questions posed for this part of the study were as follows:

- Are there different patterns of preferences for certain publication formats over others in various subfields? Are there cross-national differences?

- Do different subfields borrow from different disciplines and to what extent? Are there cross-national differences?

- Does the median age of citations vary from subfield to subfield? Are there cross-national differences?

- Are foreign language materials used more frequently in some subfields than others? Are there cross-national differences?

E. Justification of the Study

A discovery of distinct subfield characteristics in the discipline of political science could have significant implications for librarians and other information specialists, as well as for members of the discipline itself.

Academic librarians strive to serve the particular needs of highly specialized researchers at their institutions, both in terms of collections and services. As research activities at any given institution tend to concentrate on a limited range of specializations within a discipline, an awareness of distinct subfield characteristics could do much to enhance the library service offered to these specialized target groups. Collection developers, collection evaluators, and reference librarians, in particular, could benefit from this knowledge.

Indexing and abstracting services in the area of political science have traditionally been plagued by the discipline's characteristic lack of cumulation (Sjoblom, 1977) and wide range of subject dispersion (Palais, 1976). This results in relatively weak bibliographic control and difficult access to comprehensive information. A better understanding of subfield characteristics may help bibliographers and indexers improve bibliographic access tools for the discipline.

Political scientists concerned with the history of their field, in particular the issue of paradigm development and the "scientific" status of the discipline, may be interested to learn about the relative cohesiveness of the subfields as evidenced by their citation characteristics.

The comparative nature of the study was intended to shed light on the cross-national utility of citation studies in the area of political science research literature.

F. Definition of Key Terms

The key terms in the research problem were research literature, political science, subfields, and citation characteristics.

Research literature-

articles appearing in refereed journals.

Political science-

a social science concerned chiefly with the description and analysis of political and esp. governmental institutions and processes and making use of factual material and methods selected from other social sciences. (Webster's Third New International Dictionary, 1976, 1755)

Subfields of political science-

areas of study within the discipline of political science as categorized by International Political Science Abstracts:

1. Political science: methods and theory
2. Political thinkers and ideas
3. Governmental and administrative institutions
   a. Central institutions
   b. State, regional and local institutions
4. Political process: public opinion, attitudes, parties, forces, groups and elections
5. International relations
   a. International law, organizations and administration
   b. Foreign policy and international relations
6. National and area studies.

Citation characteristics-

the research literature of political science was analyzed according to the following variables: publication format distribution, subject dispersion, median age of the literature, and language dispersion.

The terms 'citation characteristics' and 'citation patterns' are used interchangeably in this study.

Citation-

a reference to a text or part of a text identifying the document in which it may be found. (Harrod's librarian's glossary and reference book, 6th ed., 1987, 163)

The terms 'citation' and 'reference' are used interchangeably in this study.

Publication format distribution-

the relative frequency of references to monographs, periodicals, newspapers, and other media.

Subject dispersion-

the frequency of references to literature of disciplines other than political science.

Median age of literature-

the average number of years between the dates of publication of cited material and the articles under investigation.

Language dispersion-

the frequenty of references to sources in languages other than one's native language.

II. RESEARCH DESIGN

A. Data Collection Method

The following section will provide a rationale for the selection of the journals which were analyzed and specify the methods of collecting data on article and citation characteristics.

Selection of Journals

The journals chosen as representative examples of political science research literature in Canada and the U.S. were the Canadian Journal of Political Science (CJPS) and the American Political Science Review (APSR). Both journals are official publications of national political science associations in their respective countries and aim at high quality scholarship, as evidenced by their use of referee systems. The Social Sciences and Humanities Research Council of Canada (SSHRC) praised the CJPS as "the flagship journal of political science in Canada" (CPSA Bulletin, 1989, 5). In a recent journal evaluation survey, American political scientists ranked the APSR as the most familiar journal and gave it one of the highest quality ratings (Giles et al., 1989)..

Both journals appear on a quarterly basis and follow a similar format, i.e. their major components are research articles and book reviews. By covering all subfields of the discipline both publications strive to serve as general forums for political scientists of all specializations. The APSR stipulates that "contributors must demonstrate how their analysis or exposition illuminates a significant

research problem, or answers an important research question, of general interest in political science." (APSR, "Instruction to Contributors") Although past studies (Pfotenhauer, 1972; Hajjar, 1975) have shown a substantial imbalance in the coverage of different subfields in these journals, they were still considered to be the best available single sources for representing the discipline's literature as a whole for the purposes of this study.

Due to time constraints, the focus of analysis was limited to five publication years in the recent past (mid-1983 to mid-1988). Thus the study was not longitudinal, but only attempted to reflect the current state of citation patterns.

Data Elements

The unit of analysis for the study was the journal article. Book reviews, commentaries, research notes, and other types of materials were excluded. Each article was examined in regard to characteristics of the text itself and of the attached citations.

Article Characteristics

A subfield code was assigned to each article after consulting International Political Science Abstracts (IPSA), a service which indexes both journals in full and provides access to know-item subfield categories via its author index. IPSA is published by the International Political Science Association and uses a simplified version of the classification scheme of the International Bibliography of Political Science, published by Unesco.

In addition, data regarding the presence of tables and figures in the articles were collected by scanning the journals directly. No distinction was made between descriptive and inferential statistics, nor was the extent of quantification within articles measured.

All research articles in CJPS published during the five year period under investigation (107 articles with 3478 citations) were analyzed, and a similar number of APSR articles (108 articles with 4537 citations) were chosen for analysis from the same time period. This represents all APSR articles in subfields 2 (Political thinkers and ideas), 3 (Governmental and administrative institutions), 5 (International relations), and 6 (National and area studies), and a random sample of 25 articles each from subfields 1 (Political science: methods and theory) and 4 (Political process). The total number of articles investigated was 215, and the total number of citations analyzed was 8015.

Citation Characteristics

Each citation was analyzed according to its publication format, its subject, its age in relation to the date of journal publication, and its language. The Library of Congress Classification scheme was used for subject coding, as the most conveniently available primary bibliographic searching tool for this study, the University of Alberta's online catalog (DOBIS), uses this classification scheme. Items not found in DOBIS were checked manually in the University of Alberta's card catalog or in Ulrich's International Periodical Directory. Each cited source was only counted once within any given article; repetitive citations were disregarded.

All data were coded on specially designed coding sheets (see Appendix 1 for sample) and subsequently entered into a SPIRES database for computer analysis.

B. Creating the Database

SPIRES (Stanford Public Information Retrieval System) is a generalized data base management system which is operated by the University of Alberta under the Michigan Terminal System (MTS). SPIRES allows users to develop and administer their own data base applications. The file definition specifies how the data in a file are to be organized and which data elements should be indexed. Each record can contain a variety of required or optional data elements for which SPIRES builds indexes that can later be used to retrieve data in a systematic way. (SPIRES Searching and Updating. Computing Services, University of Alberta, May 1987.)

The file definition for the database which was created for the purpose of this study contained the following data elements: journal name, statistics (i.e. use or non-use of graphs and tables in the article), subfield, subject, age, format, and language (see Appendix 2 for a copy of the file definition). All elements, with the exception of "age" and "subject", were designated as being "required". As some citations did not indicate a date of publication and subject classification codes could not be determined for all references, these data elements were designated as being "optional".

All data elements were indexed, allowing for subsequent searching of each type of element either by itself or in combination with any other element.

Once the file definition was compiled, data from the coding sheets were entered into an MTS line file, processed according to the file definition and stored in the SPIRES database called 'PSLIT' for subsequent systematic retrieval.

C. Data Analysis

The creation of tables necessary for systematic analysis involved both off- and on-line compilation of data.

Data concerning characteristics of the articles under investigation, i.e. the number of articles per subfield, the language of the article, and the use of statistical methods per subfield, were compiled manually by consulting the journals directly.

Data concerning citation characteristics, i.e. format, subject, age and language of the citations, were compiled by searching on-line using the SPIRES command language. The results were entered into the appropriate tables and percentage distributions for the various frequencies were calculated.

D. Assumptions and Limitations

The present study was based on a number of assumptions concerning the sources chosen, the tools which were used, and the methodology that was applied which need to be taken into consideration in order to assess both the scope and the limitations of its findings adequately:

- The two journals chosen for analysis were assumed to be representative of political science research in Canada and the United States respectively, i.e. to give an accurate reflection of the total scope and range of methodologies used in the discipline in these countries.

- The study was based on the assumption that the categorization of articles into subfields by the abstracting tool chosen (IPSA) is a valid one and that the indexing work of this service is of high quality, does not allow overlap of categories, and is applied consistently.

- Similarly, the quality of the subject analysis of citations was dependent on the accurate application of Library of Congress classification by the creators of the catalogs consulted. The shortcomings of the LC classification scheme as a tool - as alluded to earlier (see "Related literature", Smalley, 1980) - imposed a particular restriction on the study: because of the incompatibility of the tool used to categorize the articles into subfields and that used to classify individual citations, an intradisciplinary comparison of citation characteristics (i.e. the extent to which subfields of political science borrow from each other) was not possible.

- The choice of citation analysis as a method of research was founded on the basic assumption that "a citation represents a relationship between the cited and citing documents" (Smith, 1981, 84). The nature of these relationships can be as varied and complex as the reasons for citing other sources, as pointed out by Garfield (1965), Broadus (1977), Hurt (1987), and others. However, as an in-depth analysis of these underlying factors was beyond the scope of the present study, all citations were by necessity regarded as having equal importance - a

significant point to consider when interpreting the outcome of the study.

Moreover, the reader needs to bear in mind "that citations do not reflect all literature use" (Smith, 94) in a given subject area and that the generalization of findings, especially in the social sciences, is very difficult. The present study will have to be evaluated in the context of previous research in this area and more studies using larger population and sample sizes from a greater variety of sources will be needed to arrive at more generalizable conclusions.

Thus, while citation studies can produce valuable data for assessing subject literatures, library practitioners need to be aware of their limitations before applying them to their work and should not base collection-related or other decisions on these studies alone.

III. RESULTS

A. Comparison of Article Data

In this section, results of the comparative analysis of article data will be presented. These include the subfield and language distribution of articles and the use of statistical methods.

Subfield/Language Distribution

Table 1 provides an overview of the number and proportion of articles per subfield and journal published during the time period under investigation (mid-1983 to mid-1988). Both the Canadian Journal of Political Science (CJPS) and the American Political Science Review (APSR) published mostly articles falling into the subfield categories of subfield 1: Political Science: methods and theory (further referred to as "Methods/Theory"); subfield 2: Political thinkers and ideas (further referred to as "Thinkers/Ideas"); subfield 3: Governmental and administrative institutions, including a) Central institutions, and b) State, regional and local institutions (further referred to as "Political Institutions"); and subfield 4: Political process: public opinion, attitudes, parties, forces, groups and elections (further referred to as "Political Process").

However, while the proportion of articles assigned to these subfields was distributed fairly evenly in the case of CJPS, the breakdown for APSR showed a substantial

predominance of subfield 1 (Methods/Theory) and subfield 4 (Political Process) articles.

In view of the fact that APSR published more than twice as many articles as CJPS during this time period, it is interesting to note that this difference in the number of articles is almost entirely made up by the high concentration of American articles in subfields 1 (Methods/Theory) and 4 (Political Process). The remaining subfield categories combined contained less than 10% of the total number of articles published in either journal. These were subfield 5, International relations, including a) international law, organization and administration, and b) foreign policy and international relations (further referred to as "International Relations"); and subfield 6, National and area studies (further referred to as "National/Area Studies").

A breakdown of CJPS articles into English (77.6%) and French (22.4%) contributions revealed a similar pattern of a predominance of the first four subfield categories and a low occurrence of subfield 5 or 6 type articles. Francophone researchers tended to contribute relatively more to subfield 1 (Methods/Theory) and subfield 3 (Political Institutions), whereas Anglophone researchers contributed relatively more to subfield 2 (Thinkers/Ideas) and subfield 4 (Political Process) than their Francophone counterparts.

Table 2: Journal articles per subfield
(mid-1983 to mid-1988)

Subfield	CJPS (English)		CJPS (French)		CJPS (Total)		APSR	
	N	%	N	%	N	%	N	%
1) Methods/ Theory	12	14.5	5	20.8	17	15.9	91*	40.1
2) Thinkers/ Ideas	20	24.1	4	16.7	24	22.4	24	10.6
3) Political Institutions	19	22.9	8	33.3	27	25.2	23	10.1
4) Political Process	24	28.9	6	25.0	30	28.0	78*	34.4
5) International Relations	4	4.8	1	4.2	5	4.7	8	3.5
6) National/ Area Studies	4	4.8	0	0.0	4	3.7	3	1.3
Total	83	100.0	24	100.0	107	99.9	227**	100.0

* a random sample of 25 articles were used for analysis in these subfields

** a total of 108 articles were used for analysis

Table 3 lists the number of analyzed citations for each journal and subfield. The 107 CJPS articles had a total of 3478 citations (2809 were from English, 669 from French articles). A total of 4537 citations from a sample of 108 APSR articles were analyzed (as mentioned earlier, the sampling was restricted to subfield 1 (Methods/Theory) and subfield 4 (Political Process); all other subfield categories were analyzed in full). Corresponding to the subfield distribution pattern of articles in Table 2, the vast majority of analyzed citations were derived from subfields 1 to 4. Considering the relatively low number of citations available for subfield categories 5 (International Relations) and 6 (National/Area Studies), a note of caution should be included at this point regarding the outcome of further comparative analysis in these areas. Although the results will accurately reflect the citation characteristics in these subfields for the time period under investigation, the likelihood that an analysis of a larger sample of articles over a larger time period may come up with different results is much greater than is the case with the other subfields.

Table 3: Number of analyzed citations by journal and subfield

Subfield	CJPS (English)		CJPS (French)		CJPS (Total)		APSR		Total	
	N	%	N	%	N	%	N	%	N	%
1) Methods/ Theory	511	18.2	141	21.1	652	18.7	1029	22.7	1681	21.0
2) Thinkers/ Ideas	465	16.5	94	14.0	559	16.1	867	19.1	1426	17.8
3) Political Institutions	734	26.1	248	37.1	982	28.2	888	19.6	1870	23.3
4) Political Process	811	28.9	128	19.1	939	27.0	1144	25.2	2083	26.0
5) International Relations	185	6.6	58	8.7	243	7.0	375	8.3	618	7.7
6) National/ Area Studies	103	3.7	0	-	103	3.0	234	5.1	337	4.2
Total	2809	100.0	669	100.0	3478	100.0	4537	100.0	8015	100.0

Use of Statistical Methods

All articles were analyzed according to use of statistical methods, as measured by the presence of graphs or tables in the text. Table 4 provides a comparative listing of this variable, illustrating the frequency of use and non-use of statistics for each journal by subfield.

Almost two-thirds of CJPS articles showed no use of quantitative methods. Only in subfield 4 (Political Process) were statistics used in the majority of articles.

APSR articles, on the other hand, displayed just the opposite trend: the vast majority of articles (75.9%) included graphs or tables, while the category of "no use of statistics" was almost entirely made up of articles from subfield 2 (Thinkers/Ideas).

Consequently, the areas of greatest similarity between the two journals in terms of the variable "use of statistics" were subfield 2 (Thinkers/Ideas), where all CJPS and the majority of APSR articles fell into the "no use" category, and subfield 4 (Political Process), where all APSR and the majority of CJPS articles fell into the "use" category. (Due to the small number of articles available for analysis in subfield 6, National/Area Studies, the apparent result of an even split between the "use" and "no use" categories in both journals may not be indicative of a general trend.)

Table 4: Use of statistics in analyzed articles by journal and subfield

Subfield	CJPS (Total)				APSR			
	Stats		No Stats		Stats		No Stats	
	N	%	N	%	N	%	N	%
1) Methods/ Theory	4	3.7	13	12.1	22	20.4	3	2.8
2) Thinkers/ Ideas	0	-	24	22.4	2	1.8	22	20.4
3) Political Institutions	10	9.3	17	15.9	23	21.3	0	-
4) Political Process	21	19.6	9	8.4	25	23.1	0	-
5) International Relations	1	0.9	4	3.7	8	7.4	0	-
6) National/ Area Studies	2	1.9	2	1.9	2	1.8	1	0.9
Total	38	35.5	69	64.5	82	75.9	26	24.1

B. Comparison of Citation Data

In this section, results of the comparative analysis of citation data will be presented. These include the distribution of publication formats, subjects, ages and languages.

Publication Format Distribution

The publication format for each citation was identified using the following list: monographs (including analyzed monographs, reference works, and data manuals); periodicals (including serials, such as yearbooks); newspapers; government publications (including regional, national, foreign, and international publications); law reports (including regional, national, and foreign case reports and statute law); conference proceedings (including individual conference papers); theses (including PhD and Master's theses); and miscellaneous (including unpublished papers, working papers, technical reports, discussion papers, party pamphlets, union documents, speeches, and interviews).

Tables 5a and 5b provide a breakdown of the publication format distribution by subfield for CJPS and APSR, respectively.

Table 5a: Publication format distribution of citations by subfield for CJPS articles

Format	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Monographs	419	64.3	399	71.4	423	43.1	399	42.5	78	32.1	53	51.5	1771	50.9
Periodicals	186	28.5	133	23.8	235	23.9	344	36.6	50	20.6	29	28.2	977	28.1
Newspapers	12	1.8	7	1.3	29	3.0	57	6.1	29	11.9	10	9.7	144	4.1
Government Publications	16	2.4	13	2.3	165	16.8	77	8.2	79	32.5	6	5.8	356	10.2
Law Reports	5	0.8	0	-	102	10.4	1	0.1	0	-	1	1.0	109	3.1
Conference Proceedings	7	1.1	3	0.5	10	1.0	21	2.2	2	0.8	2	1.9	45	1.3
Theses	2	0.3	4	0.7	7	0.7	10	1.1	2	0.8	2	1.9	27	0.8
Miscellaneous	5	0.8	0	-	11	1.1	30	3.2	3	1.2	0	-	49	1.4
Total	652	100.0	559	100.0	982	100.0	939	100.0	243	99.9	103	100.0	3478	99.9

Table 5b: Publication format distribution of citations by subfield for APSR articles

Format	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Monographs	513	49.9	679	78.3	411	46.3	506	44.2	170	45.3	148	63.2	2427	53.5
Periodicals	443	43.1	180	20.8	388	43.7	475	41.5	131	34.9	80	34.2	1697	37.4
Newspapers	2	0.2	1	0.1	3	0.3	73	6.4	3	0.8	0	-	82	1.8
Government Publications	23	2.2	0	-	32	3.6	31	2.7	53	14.1	0	-	139	3.1
Law Reports	0	-	0	-	8	0.9	3	0.3	0	-	0	-	11	0.2
Conference Proceedings	19	1.8	4	0.5	24	2.7	43	3.8	10	2.7	2	0.9	102	2.2
Theses	4	0.4	1	0.1	6	0.7	4	0.3	3	0.8	1	0.4	19	0.4
Miscellaneous	25	2.4	2	0.2	16	1.8	9	0.8	5	1.3	3	1.3	60	1.3
Total	1029	100.0	867	100.0	888	100.0	1144	100.0	375	100.0	234	100.0	4537	99.9

Over 50% of the citations in both journals were to monographs. Together with the next largest group - periodicals - they made up 79% of CJPS citations and 90.9% of APSR citations. The remaining APSR citations were spread fairly evenly across all the other format types with no single group larger than 3.1% (government publications). Canadian political scientists, on the other hand, cited more government publications (10.2%), newspapers (4.1%), and law reports (3.1%) in CJPS. The remaining categories were considered to be too small to warrant further detailed discussion.

A subfield-by-subfield approach provided a more detailed picture of the differences between the two journals in regard to the publication format distribution of citations.

The citations in subfield 1 (Theory/Methods) consisted almost entirely of monographs and periodicals in both journals (92.8% of CJPS citations, 93% of APSR citations), while all other formats were little used (none of the remaining media made up more than 2.4% of the cited sources in either journal). However, Canadian researchers cited more than twice as many monographs (64.3%) as periodicals (28.5%), whereas APSR authors cited a much larger proportion of periodical articles (43.1%), reducing the relative predominance of monographs (49.9%).

Subfield 2 (Thinkers/Ideas) displayed an even narrower distribution of publication formats in both journals. As many as 95.2% of CJPS citations and 99.1% of APSR citations were either to monographs or periodicals. Unlike subfield 1 (Methods/Theory), the weighting of these two formats was fairly similar in both journals. An exceptionally high proportion of citations (CJPS - 71.4%; APSR - 78.3%) was to

monographs, and a comparatively low proportion of citations was to periodicals (especially in the case of APSR).

The distribution of publication formats in subfield 3 (Political Institutions) revealed some interesting differences between the two journals. APSR citations in this subfield displayed a pattern very similar to that of subfield 1 (Methods/Theory), with 90% of the citations to monographs and periodicals in almost equal proportions. In contrast, these two formats constituted only 67% of CJPS citations, with a comparatively low periodical citation rate of 23.9%. Unlike their American counterparts, Canadian authors in this subfield also cited a considerable amount of government publications (16.8%) and law reports (10.4%).

The patterns for subfield 4 (Political Process) showed great similarities between the journals regarding the relative importance of monographs (CJPS - 42.5%; APSR - 44.2%), periodicals (CJPS - 36.6%; APSR - 41.5%), and newspapers (CJPS - 6.1%; APSR - 6.4%). In addition to these formats, Canadian researchers in this subfield also cited a sizable proportion of government publications (8.2%).

CJPS authors in subfields 5 (International Relations) and 6 (National/Area Studies) again cited newspapers and government publications in addition to monographs and periodicals. The extent of the use of government publications in subfield 5 (32.5%) is especially remarkable, as it even surpasses that of monographs (32.1%).

In the case of APSR articles in these two subfields, the only departure from the norm (i.e. high citation rates for monographs and periodicals) was the relatively frequent use of government publications (14.1%) in subfield 5 (International Relations).

In summation, it can be stated that monographs were the most cited publication format in both journals across all subfields, followed by periodicals, whereby APSR articles consistently displayed a higher periodical citation rate (with the exception of subfield 2 (Thinkers/Ideas)).

Canadian researchers used a wider variety of formats in four of the six subfields. In subfield 3 (Political Institutions) government publications and law reports played an important role; and in subfields 4 to 6 newspapers and government publications made up a sizeable proportion of the citations.

APSR articles, on the other hand, displayed an overall narrower distribution of publication formats, the only exceptions being the relatively frequent use of newspapers in subfield 4 (Political Process) and of government publications in subfield 5 (International Relations). Consequently, variations between the subfields in relation to publication format distribution were not as pronounced in APSR articles as in CJPS articles. The most similar pattern of format use between the two journals emerged in subfield 2 (Thinkers/Ideas).

Publication Format Dispersion

Traditionally, bibliometric studies involving analysis of citation formats were predominantly interested in periodical citation rates. This practice originated in the fact that bibliometric techniques were first developed for the analysis of science literature - an area of research in which periodicals constitute by far the most important source of information.

In the domain of social science research, however, monographic sources are at least as important as

periodicals (in the case of political science, as found in this study, they are even more prevalent). Together, these two media form the core of the literature used by researchers across national and subfield boundaries. While it is interesting to note the relative differences in emphases on these two formats in relation to the analyzed journals and subfields, both are obviously crucial sources libraries need to provide for political scientists regardless of their specific interests. The knowledge of their relative "weight", however, probably adds very little to the provision of these services. From the viewpoint of practical librarianship it appears much more valuable to emphasize to what extent the more "non-conventional" sources are important to specific target groups. Thus, it was decided to introduce the concept of "publication format dispersion", a technique that would allow one to highlight the extent of literature use outside the two core formats. The degree of format dispersion was determined by subtracting the percentage of cited monographs and periodicals from the total percentage of citations in each subfield.

The results listed in Table 6 illustrate succinctly the previously discussed variations in format use.

Table 6: Publication format dispersion by journal and subfield

Journal	Methods/ Theory	Thinkers/ Ideas	Political Institutions	Political Process	International Relations	National/ Area Studies	Total
	%	%	%	%	%	%	%
CJPS	7.2	4.8	33.0	20.9	47.2	20.3	20.9
APSR	7.0	0.9	10.0	14.3	19.7	2.6	9.0

Subject Distribution

The subject distribution of citations by subfield is listed in detail in Tables 7a and 7b, grouped by major Library of Congress Classification codes. As subject codes could not be determined for all citations, it is important to note the proportion of missing values in the various subfields. A large portion of these can be explained by the fact that the catalog consulted did not supply Library of Congress classification for government publications or law reports, therefore these formats were not included in the subject analysis. In addition, most of the "grey literature" (i.e. those formats that were grouped under 'miscellaneous') and some foreign language material were not contained in the catalog. Thus, the subject analysis was largely based on monographic, periodical, and newspaper citations.

Table 7a: Subject distribution of citations by subfield for CJPS articles

Subject	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Works (A)	20	3.3	15	2.8	35	5.1	74	9.2	28	17.9	10	11.9	182	6.3
Philosophy (B-BD)	35	5.7	93	17.4	4	0.6	2	0.2	1	0.6	1	1.2	136	4.7
Psychology (BF)	2	0.3	1	0.2	4	0.6	2	0.2	0	-	0	-	9	0.3
Religion (BJ-BX)	12	2.0	10	1.9	0	-	13	1.6	0	-	1	1.2	36	1.3
History (C-FC)	42	6.9	70	13.1	93	13.6	91	11.3	29	18.6	29	34.5	354	12.3
Anthropology (GN)	4	0.7	0	-	0	-	4	0.5	0	-	0	-	8	0.3
Social Science/ Statistics (H-HA)	30	4.9	11	2.1	2	0.3	3	0.4	1	0.6	0	-	47	1.6
Economics (HB-HJ)	62	10.2	20	3.7	145	21.2	53	6.6	53	34.0	7	8.3	340	11.8
Sociology (HM-HX)	77	12.6	52	9.8	34	5.0	83	10.3	6	3.8	7	8.3	259	9.0
Political Science (J)	264	43.3	215	40.3	247	36.1	431	53.5	32	20.5	28	33.3	1217	42.4
Law (K)	11	1.8	14	2.6	100	14.6	10	1.2	0	-	0	-	135	4.7
Education (L)	2	0.3	2	0.4	2	0.3	4	0.5	0	-	0	-	10	0.3
Fine Arts (N)	0	-	1	0.2	0	-	0	-	0	-	0	-	1	0.0
Language/ Literature (P)	6	1.0	22	4.1	6	0.9	14	1.7	0	-	1	1.2	49	1.7
Science (Q)	21	3.4	3	0.6	1	0.1	5	0.6	0	-	0	-	30	1.0
Medicine (R)	2	0.3	2	0.4	1	0.1	17	2.1	0	-	0	-	22	0.8
Agriculture (S)	0	-	0	-	4	0.6	0	-	0	-	0	-	4	0.1
Technology (T)	2	0.3	0	-	5	0.7	0	-	0	-	0	-	7	0.2
Military/Naval Science (U-V)	18	3.0	1	0.2	0	-	0	-	6	3.8	0	-	25	0.9
Library Science (Z)	0	-	1	0.2	1	0.1	0	-	0	-	0	-	2	0.1
Total Analyzed	610	100.0	533	100.0	684	99.9	806	99.9	156	99.8	84	99.9	2873	99.8
No Subject Found	42	6.4	26	4.6	298	30.3	133	14.2	87	35.8	19	18.4	605	17.4
Total	652		559		982		939		243		103		3478	

Table 7b: Subject distribution of citations by subfield for APSR articles

Subject	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
General Works (A)	5	0.5	10	1.2	4	0.5	15	1.5	3	1.0	0	-	37	0.9
Philosophy (B-BD)	5	0.5	180	21.0	0	-	2	0.2	0	-	2	1.1	189	4.7
Psychology (BF)	27	2.9	17	2.0	2	0.3	12	1.2	3	1.0	3	1.6	64	1.6
Religion (BJ-BX)	1	0.1	36	4.2	0	-	0	-	0	-	6	3.3	43	1.1
History (C-FC)	33	3.5	108	12.6	33	4.3	31	3.2	31	10.2	29	15.9	265	6.6
Anthropology (GN)	1	0.1	1	0.1	0	-	0	-	1	0.3	11	6.0	14	0.3
Social Science/ Statistics (H-HA)	36	3.8	16	1.9	28	3.6	41	4.2	6	2.0	3	1.6	130	3.2
Economics (HB-HJ)	258	27.4	38	4.4	162	21.0	68	6.9	68	22.4	49	26.9	643	15.9
Sociology (HM-HX)	83	8.8	95	11.1	61	7.9	118	12.1	6	2.0	59	32.4	422	10.5
Political Science (J)	423	45.0	266	31.0	342	44.2	627	64.0	131	43.1	14	7.7	1803	44.7
Law (K)	11	1.2	12	1.4	96	12.4	25	2.6	1	0.3	0	-	145	3.6
Education (L)	6	0.6	1	0.1	6	0.8	3	0.3	0	-	4	2.2	20	0.5
Fine Arts (N)	1	0.1	4	0.5	0	-	1	0.1	0	-	0	-	6	0.1
Language/ Literature (P)	3	0.3	60	7.0	8	1.0	12	1.2	0	-	1	0.5	84	2.1
Science (Q)	26	2.8	8	0.9	19	2.5	21	2.1	18	5.9	0	-	92	2.3
Medicine (R)	0	-	2	0.2	1	0.1	1	0.1	3	1.0	1	0.5	8	0.2
Agriculture (S)	1	0.1	0	-	1	0.1	0	-	0	-	0	-	2	0.0
Technology (T)	5	0.5	0	-	5	0.6	2	0.2	2	0.6	0	-	14	0.3
Military/Naval Science (U-V)	16	1.7	1	0.1	5	0.6	0	-	31	10.2	0	-	53	1.3
Library Science (Z)	0	-	2	0.2	0	-	0	-	0	-	0	-	2	0.0
Total Analyzed	941	99.9	857	99.9	773	99.9	979	99.9	304	100.0	182	99.7	4036	99.9
No Subject Found	88	8.5	10	1.2	115	13.0	165	14.4	71	18.9	52	22.2	501	11.0
Total	1029		867		888		1144		375		234		4537	

Political scientists in both journals cited subjects from the whole range of main LC classes (with the exception of Music). In order to provide a better overview of the general areas of interest, summary tables illustrating the proportion of literature use of major subject areas were constructed. The results are shown in Tables 8a and 8b.

Table 8a: Subject area distribution of citations by subfield for CJPS articles

Subject Areas	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Social Sciences	470	77.0	317	59.5	535	78.2	590	73.2	98	62.8	42	50.0	2052	71.4
Humanities	95	15.6	196	36.8	103	15.1	120	14.9	30	19.2	32	38.1	576	20.0
Pure/ Applied Science	25	4.1	5	0.9	11	1.6	22	2.7	0	-	0	-	63	2.2
General Works	20	3.3	15	2.8	35	5.1	74	9.2	28	17.9	10	11.9	182	6.3
Total	610	100.0	233	100.0	684	100.0	806	100.0	156	100.0	84	100.0	2873	99.9

Table 8b: Subject area distribution of citations by subfield for APSR articles

Subject Areas	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Social Sciences	861	91.5	449	52.4	702	90.8	894	91.3	247	81.2	143	78.6	3296	81.7
Humanities	43	4.6	388	45.3	41	5.3	46	4.7	31	10.2	38	20.9	587	14.5
Pure/ Applies Science	32	3.4	10	1.2	26	3.4	24	2.5	23	7.6	1	0.5	116	2.9
General Works	5	0.5	10	1.2	4	0.5	15	1.5	3	1.0	0	-	37	0.9
Total	941	100.0	857	100.1	773	100.0	979	100.0	304	100.0	182	100.0	4036	100.0

The vast majority of citations in both journals and in all subfields was derived from disciplines within the social sciences. This subject area was composed of the following disciplines: Psychology (LC class BF), Anthropology (GN), General Social Science and Statistics (H-HA), Economics (HB-HJ), Sociology (HM-HX), Political Science (J), Law (K), Education (L), Military/Naval Science (U-V), and Library Science (Z). Overall, APSR authors relied more on sources from this group than did CJPS authors: subfield 1 (Methods/Theory), subfield 3 (Political Institutions) and subfield 4 (Political Process) had the highest use ratio of social science sources in both journals. However, this constituted over 90% in the case of APSR, whereas CJPS researchers cited between 70-80% from this group. In comparison, the categories of subfield 5 (International Relations) and subfield 6 (National/Area Studies) displayed a relatively lower citation rate to social science material in both journals. In APSR, subfield 2 (Thinkers/Ideas) emerged with a markedly lower social science citation ratio than all other subfields (52.4%), a value quite similar to that of CJPS (59.5%) in this subfield.

Disciplines related to the humanities formed the second largest subject area cited by political scientists. Citations from Philosophy (LC class B-BD), Ethics and Religion (BJ-BX), History (C-FC), Fine Arts (N), and Language and Literature (P) were summarized under this heading. Overall, Canadian researchers cited considerably more from this group than their American counterparts; in fact, no less than 15% of CJPS citations in all subfields were derived from the humanities. Subfield 2 (Thinkers/Ideas) and subfield 6 (National/Area Studies)

showed especially high citation rates - an observation that is also true for APSR, which otherwise displayed considerably lower rates.

The pure and applied sciences - a subject area composed of General Science (LC class Q), Medicine (R), Agriculture (S), and Technology (T) - played a minor role in both journals. The exception was subfield 5 (International Relations) in APSR, where 7.6% of the citations were from this subject area.

General works corresponds to the LC class "A" and includes works which cannot easily be classified in any one specific subject area, i.e. reference works, periodical indexes, and newspapers and magazines of a general nature.

The conspicuously high CJPS citation rates in subfield 4 (Political Process), subfield 5 (International Relations), and subfield 6 (National/Area Studies) can in part be explained by the frequent use of newspapers in these areas (compare Table 5a). Further investigation revealed that 70.8% of all sources classified under class "A" were newspapers. Although APSR researchers also used a high proportion of newspapers in subfield 4 (6.4%), this was not reflected to the same extent in their "General Works" category. This seems to suggest that newspapers of a more specialized nature were used.

The following rank-order presentation of the most cited subject disciplines is intended to highlight the most important similarities and differences between the two journals in the various subfields.

Table 9: Most cited subjects in rank-order by subfield (lower cut-off point 5%)

METHODS/THEORY

CJPS		APSR	
Political Science	43.3%	Political Science	45.0%
Sociology	12.6	Economics	27.4
Economics	10.2	Sociology	8.8
History	6.9		
Philosophy	5.7		

THINKERS/IDEAS

CJPS		APSR	
Political Science	40.3%	Political Science	31.0%
Philosophy	17.4	Philosophy	21.0
History	13.1	History	12.6
Sociology	9.8	Sociology	11.1
		Language/Literature	7.0

POLITICAL INSTITUTIONS

CJPS		APSR	
Political Science	36.1%	Political Science	44.2%
Economics	21.2	Economics	21.0
Law	14.6	Law	12.4
History	13.6	Sociology	7.9
General Works	5.1		
Sociology	5.0		

POLITICAL PROCESS

CJPS		APSR	
Political Science	53.5%	Political Science	64.0%
History	11.3	Sociology	12.1
Sociology	10.3	Economics	6.9
General Works	9.2		
Economics	6.6		

INTERNATIONAL RELATIONS

CJPS		APSR	
Economics	34.0%	Political Science	43.1%
Political Science	20.5	Economics	22.4
History	18.6	History	10.2
General Works	17.9	Military/Naval Science	10.2
		Science	5.9

NATIONAL/AREA STUDIES

CJPS		APSR	
History	34.5%	Sociology	32.4%
Political Science	33.3	Economics	26.9
General Works	11.9	History	15.9
Economics	8.3	Political Science	7.7
Sociology	8.3		

Subfield 1 (Methods/Theory) displayed similar patterns in terms of the relative importance of the home discipline and of sociology. American authors cited a substantially larger proportion of economics material, while Canadian authors also referred to a noteworthy amount of history and philosophy sources.

Subfield 2 (Thinkers/Ideas) showed the closest parallels in the composition of subject citations. The rank-order of cited subjects was the same in both journals, and even the weighting of each discipline was fairly similar. The seeming discrepancy of a greater preference of language/literature sources on the part of APSR authors appears less meaningful when considering that CJPS citations in class "P" (4.1%) actually did not fall much below the cut-off point.

Citation patterns in subfield 3 (Political Institutions) showed a great resemblance in terms of the use of materials from political science, economics, law, and sociology. However, it is interesting to note at this point that, while the use of law-related monographs and periodicals was almost equivalent in both journals, CJPS researchers in addition cited a large proportion of law reports (10.4% in this subfield - a format which was not included in the subject analysis). Canadian authors also included a sizable proportion of history sources and general works in their citations.

Subfield 4 (Political Process) displayed a particularly high citation rate of political science materials and almost equivalent rates of sociology and economics sources in both journals. In addition, CJPS authors again demonstrated a greater emphasis on history and general works.

Subfield 5 (International Relations) authors varied greatly in their choice of citations. In CJPS economics sources ranked considerably above political science sources, closely followed by history and general works. In APSR articles on the other hand, political science materials were the most cited, whereas economic sources were not as predominant. History and military/naval science ranked equally as the third most cited disciplines. APSR authors in this subfield were the only group to cite a noteworthy proportion of science-related sources.

The greatest differences in subject citation patterns could be observed in subfield 6 (National/Area Studies). Perhaps the most impressive results that emerged were the exceptionally high citation rate of historical sources in the CJPS and the extremely low proportion of political science material cited in APSR.

In summation, it is interesting to note that - with the noteworthy exception of history in CJPS - none of the disciplines outside political science itself were substantially represented in all six subfields. Economics (except for subfield 2, Thinkers/Ideas) and sociology (except for subfield 5, International Relations) contributed a considerable number of citations in both journals. Other disciplines were mainly consulted in only one particular subfield, namely philosophy in subfield 2 (Thinkers/Ideas) and law in subfield 3 (Political Institutions). The most interesting case among the most widely cited subject disciplines is perhaps history, a discipline which was cited widely, as well as extensively, by CJPS authors in all subfields, but to a much lesser degree by APSR authors in merely three subfields.

Subject Dispersion

As a concise measure of the extent of interdisciplinary borrowing of sources in the political science research literature investigated, the proportion of subject dispersion in each journal is listed by subfield in Table 10. "Subject dispersion" can be defined as the percentage of citations that were derived from subjects outside the home discipline, i.e. political science.

Table 10: Subject dispersion of citations by journal and subfield

Journal	Methods/ Theory	Thinkers/ Ideas	Political Institutions	Political Process	International Relations	National/ Area Studies	Total
	%	%	%	%	%	%	%
CJPS	56.7	59.7	63.9	46.5	79.5	66.7	57.4
APSR	55.0	69.0	55.8	36.0	56.9	92.3	55.2

Overall, a very high degree of subject dispersion could be observed, illustrating the interdisciplinarity of political science research. Only subfield 4 (Political Process) derived less than 50% of its citations from outside the home discipline. At the other extreme, CJPS authors in subfield 5 (International Relations) and APSR authors in subfield 6 (National/Area Studies) relied overwhelmingly on non-political science sources. Whether this exceptionally diverse subject dispersion was due to the particular characteristics of the small population size at hand for analysis or is indeed indicative of distinctive national preferences for certain research approaches could only be answered by further research. One may tentatively

speculate that the particular emphases in citation patterns in subfield 5 (International Relations) may be due to the fact that economic interests are at the forefront of Canadian foreign policy and international relations, while Americans, as citizens of a military superpower, have a greater interest in researching military issues.

Age Distribution

The age distribution of citations in each journal and subfield was determined for eight 5-year intervals. The results are presented in Tables 11a and 11b. The age category "0" refers to publication sources which were published in the same year as the citing article or to citations of forthcoming publications.

Table 11a: Age distribution of citations by subfield for CJPS articles

Age (Years)	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0-5	209	32.3	129	23.4	417	42.6	341	36.9	91	37.6	47	45.6	1234	35.8
6-10	142	21.9	121	21.9	209	21.3	259	28.0	56	23.1	29	28.2	816	23.7
11-15	93	14.4	80	14.5	123	12.6	150	16.2	24	9.9	9	8.7	479	13.9
16-20	72	11.1	53	9.6	79	8.1	71	7.7	45	18.6	6	5.8	326	9.4
21-25	37	5.7	47	8.5	32	3.3	42	4.5	15	6.2	2	1.9	175	5.1
26-30	30	4.6	15	2.7	28	2.9	16	1.7	4	1.7	4	3.9	97	2.8
31-35	25	3.8	16	2.9	12	1.2	16	1.7	2	0.8	1	1.0	72	2.1
36-40	7	1.1	10	1.8	8	0.8	6	0.6	4	1.7	0	-	35	1.0
41+	33	5.1	81	14.7	71	7.2	23	2.5	1	0.4	5	4.9	214	6.2
Total Analyzed	648	100.0	552	100.0	979	100.0	924	99.8	242	100.0	103	100.0	3448	100.0
No Date	4	0.6	7	1.2	3	0.3	15	1.6	1	0.4	0	-	30	0.9
Total	652		559		982		939		243		103		3478	

Table 11b: Age distribution of citations by subfield for APSR articles

Age (Years)	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0-5	364	35.5	188	21.7	324	36.6	451	39.7	165	44.0	59	25.4	1551	34.3
6-10	256	24.9	172	19.9	248	28.0	274	24.1	113	30.1	62	26.7	1125	24.9
11-15	155	15.1	141	16.3	131	14.8	171	15.0	49	13.1	44	19.0	691	15.3
16-20	90	8.8	113	13.0	82	9.2	92	8.1	20	5.3	19	8.2	416	9.2
21-25	47	4.6	72	8.3	44	5.0	64	5.6	16	4.3	16	6.9	259	5.7
26-30	43	4.2	55	6.3	24	2.7	42	3.7	5	1.3	9	3.9	178	3.9
31-35	14	1.4	30	3.5	7	0.8	19	1.7	1	0.3	7	3.0	78	1.7
36-40	26	2.5	24	2.8	6	0.7	7	0.6	1	0.3	1	0.4	65	1.4
41+	31	3.0	71	8.2	20	2.2	17	1.5	5	1.3	15	6.5	159	3.5
Total Analyzed	1026	100.0	866	100.0	886	100.0	1137	100.0	375	100.0	232	100.0	4522	99.9
No Date	3	0.3	1	0.1	2	0.2	7	0.6	0	-	2	0.8	15	0.3
Total	1029		867		888		1144		375		234		4537	

An overall comparison of age distributions revealed that the subfield citation patterns were quite similar in the two journals. With the exception of subfield 2 (Thinkers/Ideas), over 50% of the citations were not more than 10 years old, and less than 15% were older than 25 years.

Subfield 2 (Thinkers/Ideas) researchers cited a greater proportion of older materials than researchers in the other subfields. Less than 50% of the citations were 10 years old or under, and almost 15% of CJPS citations and over 8% of APSR citations were more than 40 years old.

Median Age of Citations

An alternative and more concise measure of the age of a research literature, which is conventionally used in bibliometric studies, is the median age. Thus, the median age was determined for the citations of each subfield in each journal and listed in Table 12.

Table 12: Median age of citations by journal and subfield

Journal	Methods/ Theory	Thinkers/ Ideas	Political Institutions	Political Process	International Relations	National/ Area Studies	Total
CJPS	9	12	7	8	8.5	8.5	8
APSR	8	13	8	7	7	7	8

Corresponding to the age distribution values, the median age for subfield 2 (Thinkers/Ideas) citations was the highest in both journals (12 and 13 years, respectively). The median age for the other subfields ranged from 6-10 years, with minor variations between the journals. Subfield 6 (National/Area Studies) displayed the greatest difference between the two journals with Canadian authors citing relatively recent literature and APSR authors citing comparatively older literature.

Language Distribution

The inclusion of both English and French language articles in the CJPS necessitated a two-part analysis of the variable of language distribution of citations, as different linguistic preferences could naturally be expected. Apart from English and French, Russian and German were listed separately in Tables 13a to 13c as they played an important role (i.e. greater than 5% occurance) in at least one subfield in either journal. Languages summarized under "other" included Chinese, Czech, Flemish, Italian, Japanese, Spanish, and Swedish.

Table 13a: Language distribution of citations by subfield for CJPS (English) articles

Language	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
English	488	95.5	433	93.1	710	96.7	777	95.8	183	98.9	69	67.0	2660	94.7
French	18	3.5	10	2.2	24	3.3	19	2.3	2	1.1	29	28.2	102	3.6
Russian	0	-	0	-	0	-	14	1.7	0	-	0	-	14	0.5
German	5	1.0	21	4.5	0	-	1	0.1	0	-	3	2.9	30	1.1
Other	0	-	1	0.2	0	-	0	-	0	-	2	1.9	3	0.1
Total	511	100.0	465	100.0	734	100.0	811	99.9	185	100.0	103	100.0	2809	100.0

Table 13b: Language distribution of citations by subfield for CJPS (French) articles

Language	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
English	84	59.6	43	45.7	176	71.0	42	32.8	27	46.6	0	-	372	55.6
French	57	40.4	50	53.2	70	28.2	86	67.2	31	53.4	0	-	294	43.9
Russian	0	-	0	-	0	-	0	-	0	-	0	-	0	-
German	0	-	1	1.1	1	0.4	0	-	0	-	0	-	2	0.3
Other	0	-	0	-	1	0.4	0	-	0	-	0	-	1	0.1
Total	141	100.0	94	100.0	248	100.0	128	100.0	58	100.0	0	-	669	99.9

Table 13c: Language distribution of citations by subfield for APSR articles

Language	Methods/ Theory		Thinkers/ Ideas		Political Institutions		Political Process		International Relations		National/ Area Studies		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
English	1004	97.6	765	88.2	847	95.4	1126	98.4	373	99.5	162	69.2	4277	94.3
French	7	0.7	38	4.4	1	0.1	0	-	1	0.3	0	-	47	1.0
Russian	0	-	0	-	21	2.4	0	-	0	-	67	28.6	88	1.9
German	1	0.1	48	5.5	1	0.1	0	-	1	0.3	4	1.7	55	1.2
Other	17	1.6	16	1.8	18	2.0	18	1.6	0	-	1	0.4	70	1.5
Total	1029	100.0	867	99.9	888	100.0	1144	100.0	375	100.1	234	99.9	4537	99.9

In subfield 1 (Methods/Theory), subfield 3 (Political Institutions), subfield 4 (Political Process), and subfield 5 (International Relations), English-Canadian and American researchers almost exclusively cited English-language source publications (i.e. 95.5-99.5%). Both groups made more extensive use of foreign language material in subfield 2 (Thinkers/Ideas) and particularly in subfield 6 (National/Area Studies). Compared to American political scientists, English-Canadians showed an overall higher use of French-language material across all subfields - a proportion which appears very low, however, when juxtaposed to the use of English-language sources by their Francophone colleagues.

French-Canadian authors used a surprisingly high proportion of English-language material; in the case of subfield 1 (Methods/Theory) and subfield 3 (Political Instutitions), English-language sources made up the majority of citations. Citations in languages other than French or English, however, were almost nonexistent.

Language Dispersion

Table 14 provides a concise illustration of the extent of language dispersion (i.e. the percentage of material in languages other than that of the article in which they were cited) in the various journals and subfields.

Table 14: Language dispersion of citations by journal and subfields

Journal	Methods/ Theory	Thinkers/ Ideas	Political Institutions	Political Process	International Relations	National/ Area Studies	Total
	%	%	%	%	%	%	%
CJPS(E)	4.5	6.9	3.3	4.2	1.1	33.0	5.3
CJPS(F)	59.6	46.8	71.8	32.8	46.6	-	56.1
APSR	2.4	11.8	4.6	1.6	0.5	30.8	5.7

IV. DISCUSSION

A. Article Characteristics

Subfield Distribution

Two previous studies by Hajjar et al. (1975 and 1977) attempted to determine the distribution of political science journal articles according to subfield categories. The subfield breakdown chosen by those researchers, i.e. National Government/Politics, International Relations, Comparative Government, Public Administration, Public Law, Political (normative) Theory, and Methodology (empirical studies), does not in all cases correspond to the categories used in the present study. Therefore, an exact cross-comparsion of results is not easily possible. However, some of the observations made by Hajjar et al. show interesting parallels to the present study.

During the time period that they investigated (1970-75), a plurality of articles in APSR dealt with methodology (30.8% - 1975 study, 33.9% - 1977 study). This trend appears to have intensified, as the present study revealed a proportion of 40.1% of subfield 1 (Methods/Theory) articles. The proportion of CJPS articles in this category appears to have increased, as well, from 11.2% in his 1977 study to 15.9% in the present study. For 1970-1975, CJPS emerged as "the most balanced of the four reviews", while "APSR published more work in methodology and less in [normative] political theory than the average, but was still reasonably balanced" (Hajjar et al., 1977, 328).

To some extent, the same statements could still be made about the journals. However, treatment of subfield 5 (International Relations) and subfield 6 (National/Area Studies) which is assumed to correspond largely to Hajjar's 'Comparative Government' category appears to have experienced a sharp decline in both journals during the decade since the studies by Hajjar et al. The discrepancy in the results between the National/Area Studies and Comparative Government categories may in part be due to different classification criteria used in both studies. IPSA, the tool used for the current study, includes only 'holistic', broadly-based studies of countries or areas in this category, while grouping articles dealing with particular political institutions or processes in other countries in subfields 3 or 4.

The observation holds, however, that subfield 5 (International Relations) and subfield 6 (National/Area Studies) were noticeably underrepresented in both journals in the present study. Whether this signifies a lack of interest in these areas on the part of researchers, selective editorial policies on the part of these particular journals, or is due to other factors, can only be determined by further research into this phenomenon.

Use of Statistical Methods

Although the method of data collection for this variable was rather crude, the results nonetheless showed some definite differences between the two journals.

As expected, APSR was much more empirically oriented than CJPS, reflecting the emphasis on systematic and scientific research which has continuously preoccupied

American political scientists since the 'behavioural revolution' swept the discipline in that country in the 1950's and 1960's (Kirkpatrick and Andrews, 1982). The predominance of subfield 1 (Methods/Theory) in APSR, as discussed above, can also be attributed to this phenomenon.

Canadian political science, although not left untouched by behaviouralism, did not experience its impact to nearly the same extent. Stein and Trent (1982, 113) contend:

> In the United States, the tendency has been to embrace one school of thought at the expense of other, competing schools and to discourage fundamental differences of approach within departments and the American Political Science Association.

In contrast, they characterize Canadian political science as being accepting of "several schools of thought in political science simultaneously, ... it is eclectic in approach and tolerant of a variety of normative and ideological perspectives and disciplinary approaches."

In the present study, subfield 2 (Thinkers/Ideas) showed the greatest similarity between the two journals, not only in terms of a marked absence of statistical methods in the articles concerned, but also in terms of the citation patterns which emerged. In light of the above interpretations, one may hypothesize that these similarities are due to the application of a uniform approach - i.e. a normative, philosophical approach - by researchers of both countries to this particular subfield, while other subfields show cross-national variations in citation patterns due to differences in research orientations.

This would indicate that a thorough analysis of political science literature should not only distinguish

between subfields, but also between research orientations and methodologies (the latter were studied by Al-Dosary (1986), but without inclusion of subfield distinctions). However, the central focus of the present study was a cross-national comparison of citation patterns along subfield lines. The inclusion of a third variable of 'research orientation', in addition to 'national association journal' and 'subfield', would have gone beyond the scope of this study. It is important, though, to keep the potential impact of this variable in mind when interpreting the results of this study.

B. Citation Characteristics

Publication Format Characteristics

The two most outstanding differences that emerged from the cross-national comparison of publication format distributions were the overall higher periodical citation rate of APSR authors and the considerably wider distribution of cited publication formats displayed by CJPS authors.

When juxtaposing the present results against Al-Dosary's (1986) research, i.e. his mean scores of a pooled analysis of literature formats, some interesting parallels emerged. CJPS citation patterns in the present study showed similar tendencies to Al-Dosary's 'traditional' and 'non-quantitative' groups, while results for APSR patterns closely resembled those of the 'behavioural' and 'quantitative' groups. Thus, the greater use of primary source material, such as newspapers, government documents, and law reports, by CJPS authors

could be seen as a reflection of a more 'traditional' approach to political science as evidenced by a greater emphasis on historical research methods. Stein and Trent's (1982, 113) assessment further supports this notion. They observed that political science in Canada "reflects greater innovativeness in case studies and theoretical applications than in pure theoretical contributions."

Rigney and Barnes (1980), whose study covered the years from 1936 to 1975, observed a sharp decline of citations to general periodicals and newspapers in APSR after 1960. They interpreted this apparent diminishing interest in unique events reported to the press as indicating a shift from idiographic research (i.e. pertaining to individual case studies) to nomothetic research (i.e. pertaining to a science or study of general laws). (123) These concepts are at the centre of the discussion of what characterizes a 'cumulative' discipline (e.g. Sjoblom, 1977). Based on the above interpretations, one may conclude that American political science appears to have reached a higher degree of 'cumulation' in the nomothetic sense than its Canadian counterpart.

Undoubtedly, the difference in size of the political science research communities in the two countries is a crucial factor in this context. Although the beginnings of the discipline can be traced back to the late 19th century in both countries, its development and the growth of its literature naturally proceeded at different speeds. Thus, the availability of a much larger body of secondary literature in the form of monographs and periodicals may free American political scientists from the necessity of analyzing primary sources.

The greater use of government publications and law reports by CJPS authors may also have some alternative

underlying reasons. Over the last few decades Canadian political scientists have had an increasing impact on the world of politics and administration, particularly at the federal level (Stein and Trent, 1982). Their personal involvement in royal commissions, task forces, and other agencies and in the resulting publications may explain the greater tendency to cite these types of documents in their academic research.

The frequency of references to law reports may be 'exaggerated' for the time period investigated because of the particular preoccupation with constitutional questions that surrounded the patriation of the Canadian Constitution in 1982 and its future ramifications.

Subject Characteristics

Martin (1952), Robinson (1973) and Palais (1976) in their studies of political science literature found remarkably similar subject dispersion rates (about 69-70%). Al-Dosary (1986, 1988) measured considerably lower rates of non-political science disciplines cited (about 46-48%) and attributed this difference in findings to the growth of political science literature since the mid-1960's.

The present study has overall subject dispersions of 55-57%, however, the patterns vary considerably, both between the two national journals and between some subfields within the journals. Following up Al-Dosary's notion of a connection between subject dispersion and the size of a literature, it would be interesting to investigate whether the subfields with the lowest degree of dispersion are indeed the most prolific.

A comparison of Al-Dosary's (1986) citation counts for three major subject areas with the results of this study showed that CJPS displayed citation patterns similar to his 'traditional' and 'non-quantitative' groups in terms of higher citation rates to humanities-related disciplines. Results for APSR resembled the rates displayed by his 'behavioural' and 'quantitative' groups in terms of an overwhelming reliance (over 80%) on social science literature and a lesser emphasis on materials from the humanities. Overall, however, percentages calculated for humanities sources were much higher in this study than in Al-Dosary's.

The differences in humanities-related citation ratios in the various subfields between CJPS and APSR can largely be attributed to the high use of historical sources by Canadian authors in all areas of research. This observation further supports the previously discussed notion of the existence of distinctive research orientations in the two countries.

The study by Rigney and Barnes (1980, 123) gives an indication of how the particular evolution of a discipline can be reflected by changes in citation patterns over time. The authors analyzed the subjects of periodical citations in APSR for 1936-1975 and found "evidence of a weakening of the traditional ties between political science and law", a "strengthening of its mutual ties to sociology", and generally a firmer integration into the social science communication network since 1960. The results for APSR in the present study appear to confirm these observations as continuing trends in American political science.

Age Characteristics

The results of an overall median age of cited material of 8 years for both journals and the close resemblance of outcomes for each of the subfields (with the exception of subfield 6, National/Area Studies) made the variable 'age characteristics' the area with the greatest commonality between the two journals.

Compared with previous research, the present findings are most similar to Al-Dosary's (1986, 99) who found that "more than 60 percent of all the materials used were not more than ten years old when cited." (This compares with 59.5% for CJPS and 59.2% for APSR in the present study). His median age values (6-7 years), however, were lower than most figures determined in the present study.

It is interesting to note that the considerably greater use of history sources on the part of CJPS authors had no apparent effect on CJPS median age rates compared to those of APSR. (History literature is known for having a very long half-life - Baum et al. (1976) found a median age rate of 42.5 years).

Earlier studies resulted in a number of different age profiles of cited material in political science sources. Martin (1952), whose sources were monographs published in 1948 and 1949, found that 47.6% of the cited materials were not more than 10 years old. Stewart (1970) found that only 11% of monographs cited between 1963-1966 were published before 1950.

Baum et al. (1976), in their analysis of APSR articles published in 1974, found a surprisingly low median age of citations of about 5.5 years. This may be an indication that data from a single publication year do not provide a large enough basis from which to draw conclusions about this particular variable.

The higher median age found for citations in subfield 2 (Thinkers/Ideas) in the present study may be explained by some distinct characteristics of the literature of this subfield. Researchers in this area, more than those of other subfields, are concerned with questions of an ethical-normative nature, i.e. problems that "... are timeless and remain alive in the literature just as do the great minds of the past who wrestled with them." (Baum et al., 1976, 907). Thus, classical works are more prevalent in the literature of this research field and more ephemeral sources, such as newspapers and periodical literature, are consulted to a lesser degree than in the other subfields.

Language Characteristics

Broadus (1971, 239), in his survey of citation studies, came to the conclusion "that English-speaking social scientists do not depend greatly upon research materials in foreign languages". His data for the field of political science were derived from Martin's (1952) study which found that 89.4% of all citations were to English-language sources. Stewart (1970, 353) stated: "Even though politics involves the study of the political systems of many different countries, the proportion of foreign language material is quite low..."

The amount of language dispersion found by Al-Dosary (1986) was even lower than had been suggested by previous research, his values ranged from 2.8% to 6.8% for the various groups analyzed.

The overall language dispersion rates of citations in English-language articles shown in this study (5.3% for CJPS and 5.7% for APSR) would also point to a widespread

neglect of foreign-language sources. However, on closer inspection of individual subfields, some quite drastic differences emerged. Subfield 2 (Thinkers/Ideas), particularly in APSR, and especially subfield 6 (National/Area Studies) showed substantially higher use of non-English sources than the other subfields. In the case of subfield 2 (Thinkers/Ideas), this phenomenon can be attributed to the fact that research pertaining to political philosophy transcends national boundaries, as it deals with questions of fundamental human concern irrespective of a particular societal or cultural context. Authors in this area tend to refer back to a well-established body of international literature. Many of the classical works are also available in English translation, a factor which, had it been considered in the data collection process of this study, most likely would have resulted in even higher language dispersions in this subfield.

Although based on a small number of articles, the language dispersion results for subfield 6 (National/Area Studies) citations (33.0% in CJPS, 30.8% in APSR) met logical expectations. As the subjects of analysis in this subfield are to a large extent foreign countries/systems, an extensive use of vernacular sources from these countries was to be expected.

As to the lack of references to foreign-language material in the other subfields, the following suggestions may offer some tentative explanations.

The scope of subfield 1 (Methods/Ideas) research is largely characterized by the pursuit of empirical/ analytical studies and methodological concerns. As the bulk of research in this area of non-normative theory emanates from the United States (where the field

originated), a predominance of English-language references can be expected.

Authors writing in the areas of subfield 3 (Political Institutions) and subfield 4 (Political Process) were primarily concerned with the functioning of their own national governmental system and political processes. The vast majority of relevant sources in these subfields were likely produced in their own country and in their native language. (However, this interpretation makes the lack of French-language citations in English-language articles in CJPS even more conspicuous.)

Articles in subfield 5 (International Relations) included in this study focused on Canadian or U.S. foreign policy or the roles of these countries in the international political arena. Thus, national concerns were again in the foreground. Moreover, with English being the principal language of communication in international political interactions, most publications published by international organizations are made available in this language.

Language dispersions for citations in the French portion of CJPS articles stand in stark contrast to those shown for English articles in CJPS and in APSR. A number of factors may explain this phenomenon: French-Canadians, as a linguistic minority in their own country and occupants of an otherwise English-speaking continent, by necessity rely heavily on outside sources. In part because of this need, bilingualism is much more widespread among French-Canadian political scientists than among their Anglophone counterparts. However, it is important to note that, while the amount of language dispersion of citations in French articles was much greater than in English articles of both journals, these figures are virtually

exclusively due to English-language citations. Material in other languages was cited even less than in the English articles.

V. IMPLICATIONS FOR INFORMATION SPECIALISTS

As this study was concerned with the citation patterns shown in the work of academic scholars and researchers, its results are mainly relevant to university, special, and research libraries. The findings, although not refined enough to be directly translatable into practical library procedures, such as a priorized list of periodical titles to be kept accessible for political scientists, nonetheless have a number of important broader implications for various areas of information work.

A. Collection Management

Collection managers base their decisions on a variety of information sources. Circulation statistics, in-house use statistics, user surveys, and interviews with subject experts are among the sources taken into consideration in addition to citation studies.

The variety of publication formats, subject areas, and, to some extent, languages, found to be used by political scientists in the present study point to the need for a broadly based, highly interdisciplinary collection policy.

Canadian librarians need to be particularly aware of the strong ties between political science and history in this country and coordinate their selection activities accordingly with experts in that and other social science and humanities disciplines. The apparent importance of primary source materials, such as government publications, law reports, and newspapers, demonstrates the need for close cooperation between all departments concerned and

should enter into considerations concerning the housing of these materials.

Of particular importance is the need to provide a comprehensive interdisciplinary reference collection which ensures access to the widest possible range of relevant subject areas in all publication formats.

Librarians at institutions with a particular emphasis on subfield 2 (Thinker/Ideas) or subfield 6 (National/Area Studies) may need to build up their foreign language collection in certain areas. The underlying reason for the apparent lack of use of foreign language material in the other subfields should be thoroughly examined before basing selection-related decisions on these findings.

The continued relevance of older sources to researchers affects collection management decisions such as the 'weeding' of a collection, the storage of older, little used material, or the need for back-issue collections of certain periodicals in microformat. The results of this study suggest that these considerations will be of particular importance in regard to materials used by researchers specializing in subfield 2 (Thinker/Ideas) who were found to rely more heavily on older sources than all other subfields analyzed.

In view of the high degree of interdisciplinary borrowing in the social sciences found in this and other studies, collection administrators responsible for budget allocation may consider a 'shared pool' funding scheme as a more equitable method than a strict department-by-department approach. This could encompass a group of closely linked disciplines or all of the social sciences.

B. Indexing and Abstracting Services

The high degree of subject dispersion in political science constitutes one major obstacle to the provision of effective and comprehensive indexing and abstracting services for this discipline.

Goehlert (1972) and Palais (1976) in their studies on the state of journal indexing in the field of political science found that there are a considerable number of indexes available to political scientists. However, there is considerable overlap in coverage while important peripheral areas get missed. Goehlert contended that the high degree of indexing of the core journals may be a partial cause of why those journals are cited more often than other journals. (238)

Brunk's (1989) description of the dilemma facing political scientists also illustrates the vital importance of effective indexing:

> ... with the explosion in social science publication, it has become impossible for us to keep pace with more than a small part of the literature. So much is published each year that it is difficult to remain current in even a single subfield. As a result of the information explosion, most political scientists are not familiar with new developments in other social sciences, or even recognize the major journals of those disciplines. (617)

The dangers of inadequate access to all relevant sources of information are that major discoveries in other areas may be missed, and that, as Brunk observed, entire subfields may eventually "suffer from myopia or groupthink." (618)

Another shortcoming of most existing indexes is the exclusion of monographs despite the importance of this

publication format to political scientists (as documented in this and many other studies). Freides (1976) explained the consequences of this practice as follows:

> Omission of books from the comprehensive bibliographic record is apt to mean particularly the omission of the more synthesized and solidified aspects of what is known about the subject. (74)

Powerful new technologies such as online search systems and CD-ROM, which provide rapid access to databases, are opening up exciting possibilities for the solution of these problems. Citation research, such as the present study, can contribute to the design of these tools by providing guidelines to the types of sources which ought to be covered in a particular database service. New, discipline-specific databases could be created by extracting relevant sources from a variety of existing databases. Thus far, the full potential of automated indexing has not been exploited as online services are usually mere replicas of conventional hard copy indexes.

Knowledge gained by this study about the particular make-up of subfield literatures could aid in the creation of specialized subfield bibliographies by providing guidelines for evaluating the importance of inclusion of certain publication formats, subject areas, older sources, and foreign language material.

C. Reference Service

Reference librarians can utilize the findings of this study to heighten their awareness of the range of sources relevant to political scientists and thereby improve their

service to this clientele. The detailed breakdown of particular bibliographic requirements by subfield could prove especially useful for institutions which provide personalized current awareness service for specialized researchers.

The inclusion of findings of this and other citation studies pertaining to political science could also enhance the provision of bibliographic instruction to graduate students, faculty and other researchers.

VI. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The central purpose of this study was to investigate cross-national and subfield-related differences in citation patterns in the research literature of political science. The findings showed that there were indeed a number of substantial variations in citation patterns between the two journals analyzed, as well as between some subfields. This was particularly true in regard to format distribution, subject dispersion, and language dispersion among citations.

This would indicate that general citation studies of the discipline of political science as a whole do not necessarily describe the citation patterns of the individual subfields of that discipline in an adequate manner.

Moreover, it appears that citation patterns in political science are idiosyncratic to a particular research community's approach to the discipline and therefore not automatically applicable to other countries. However, further studies involving a wider range of journals from more countries are necessary in order to corroborate these conclusions. A replication of the present study, using samples from other social science disciplines, is also desirable.

Data collected for the present study provide a wealth of further research possibilites which were not exploited here because of time limitations. These possibilities include the investigation of relationships between the basic variables analyzed in this study, such as the age distribution of various publication formats, of sources from different subject areas, and of foreign language material; the format distribution of sources from different

subject areas and of foreign language material; and the subject distribution of foreign language material.

Other potential research questions could involve a closer analysis of the two major publication formats used by political scientists. Which periodicals were cited and how often? Was there a high degree of self-citation? Is there an identifyable 'core' monographic literature and is it different in the two countries?

Finally, it must be noted that citation studies merely reflect the status quo of literature use by a certain group of researchers, but are unable to reveal potential gaps in information use. Given the complexity of access to information in the discipline of political science, it would be interesting to compare the range of periodicals found to be used by researchers in this study with a comprehensive list of potential sources, such as provided by Brunk (1989). The identification of concrete problem areas in accessing relevant material could encourage the improvement of research tools and services to this client group - one of the ultimate goals of citation research.

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Appendix 1: Sample coding sheet

Citation Data

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cdate _____ subject _____

age _____ format MON ANA-MON PER GP CONF ANA-CONF

language ENG FRE GER RUS _____

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age _____ format MON ANA-MON PER GP CONF ANA-CONF

language ENG FRE GER RUS _____

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language ENG FRE GER RUS _____

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language ENG FRE GER RUS _____

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language ENG FRE GER RUS _____

Appendix 2: File Definition

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